

REMARKS

This application is believed to be in condition for allowance. Reconsideration is respectfully requested.

Status of the Claims

Claims 1-3, 5 and 6 remain in this application.

Claim Rejections-35 USC §102

Claims 1, 2 and 6 were rejected under 35 U.S.C. §102(b) as being anticipated by RIVERS et al. US 5,993,999 (RIVERS). This rejection is respectfully traversed for the reasons below.

RIVERS discloses a metal-air battery cell (see for example column 1, line 5 and column 4, line 5), but RIVERS does not disclose a nonaqueous secondary battery.

In other words, RIVERS is non-analogous art relative to the claimed invention, and, accordingly, this metal-air cell of RIVERS does not meet the claim elements of independent claim 1.

For example, the upper anode layer 210 and the lower anode layer 220, which are made of zinc expanded metal, are not made of a particulate material as recited in claim 1 (e.g., "the active material layer containing particles of an active material").

Further, the upper current collector 250 and the lower current collector 260 of RIVERS are not adapted to be brought into contact with a nonaqueous electrolytic solution.

Moreover, the material making up the current collector 250, 260 is not present over the whole thickness of the anode layer 210, 220, as also recited in claim 1.

In addition, both the upper current collector 250 and the lower current collector 260 are made of silver. The claimed current collecting surface layer comprises metallic material having low capability of forming a lithium compound. Silver works as an active material for the claimed nonaqueous secondary battery since silver forms a compound with lithium.

Thus, RIVERS does not relate to the claimed invention at all, and the claimed invention is not anticipated by RIVERS.

Therefore, withdrawal of the rejection is respectfully requested.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C. §102(b) as being anticipated by SUGIKAWA JP 09-045334 (SUGIKAWA). This rejection is respectfully traversed for the reasons below.

SUGIKAWA discloses a current collector for a lithium secondary battery. The characteristic feature of SUGIKAWA resides in the structure of the current collector, not an active material layer.

The current collector of SUGIKAWA has a number of micropores through which a lithium ion can move from one side of the current collector to the other side thereof. The current collector has a fibrous metal sheet and a porous metal layer

located on each surface of the fibrous metal sheet. The porous metal layer is made of copper, nickel, stainless steel or electro-conductive carbon. An active material layer is present on each surface of the current collector. The active material layer is made of a mixture of carbon powder such as graphite, and a binder such as poly-tetrafluoro-ethylene.

Thus, SUGIKAWA does not meet the claim elements of the present invention. For example, as is apparent from the above discussion, SUGIKAWA does not disclose the current collecting surface layer located on the active material layer defined in claim 1. Further, SUGIKAWA does not disclose that the material of the current collecting surface layer is present over the whole thickness of the active material layer.

Thus, as SUGIKAWA does not relate to the claimed invention, SUGIKAWA does not anticipate the claimed invention.

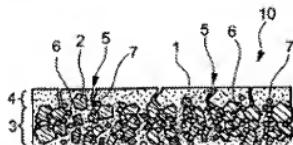
Claims 1, 2, 5 and 6 were rejected under 35 U.S.C. §102(b) as being anticipated by KAWAKAMI et al. JP 08-050922A (KAWAKAMI '922). This rejection is respectfully traversed for the reasons below.

KAWAKAMI '922 is the Japanese counterpart to the U.S. Patent 6,051,340 to KAWAKAMI et al. as previously applied. This rejection was previously withdrawn.

As previously discussed:

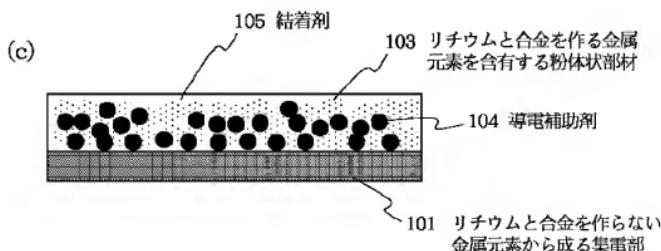
Figure 1 of the present specification illustrates the collecting surface layer (item 4), the active material layer (item 3), the active material particles (items 2), and the voids (item 5):

Fig.1



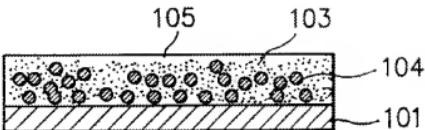
KAWAKAMI '922 was offered for teaching anode comprising an active layer interposed between two layers, and the active layer is capable of forming lithium compounds. However, KAWAKAMI '922 fails to disclose or suggest these features and their advantages.

KAWAKAMI '922 teaches the following in the Japanese application Figure 2:



This is the same as the U.S. Patent 4(c), which was discussed previously:

### FIG. 4(c)



In these figures, item 101 is a metal layer, item 104 represents an electrically conductive auxiliary, item 103 represents powdered material, and item 105 represents a binding agent. Thus, it is readily apparent that, at very least, KAWAKAMI fails to disclose or even suggest "interstices between individual active material particles in the active material layer leaving voids", as recited in claim 1.

Therefore, KAWAKAMI '922 fails to anticipate the claimed invention.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C. §102(b) as being anticipated by TAMURA et al. JP 2002-289178A (TAMURA). This rejection is respectfully traversed for the reasons below.

TAMURA discloses an electrode for a rechargeable lithium battery. This electrode comprises a current collector

layer made of a metal incapable of making an alloy with Li; an active material layer provided on the current collector layer and made of a metal capable of making an alloy with Li; and a surface coating layer provided on a surface of the active material layer, opposite to the surface on which the current collector layer is provided.

The surface coating layer is made of a metal incapable of making an alloy with Li or made of an alloy of a metal incapable of making an alloy with Li and a metal capable of making an alloy with Li. The surface coating layer meets the claimed current collecting surface layer.

However, the material of the surface coating layer of TAMURA is not present over the whole thickness of the active material layer. Instead, the material is merely present on the active material layer, and is not contained in the active material layer.

Accordingly, TAMURA fails to anticipate the claimed invention.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C. §102(b) as being anticipated by KAWAKAMI et al. JP 8171901 (KAWAKAMI '901). This rejection is respectfully traversed for the reasons below.

KAWAKAMI '901 discloses a negative electrode for a

secondary battery. The negative electrode has an electro-conductive material 101 and an insulating or semiconductor material 102. The insulating or semiconductor material 102 allows an ion which participates in the electrode reaction to pass. However, the insulating or semiconductor material 102 does not allow an active material which is deposited on the negative electrode in the course of charging to pass.

The layer located on the current collector 100 of KAWAKAMI '901 has the electro-conductive material 101, the insulating or semiconductor material 102 and voids 103 as shown in Figure 1. The electro-conductive material 101 is in a particulate form, fibrous form or a mixture thereof. The electro-conductive material 101 is made of nickel, titanium, copper, aluminum, platinum, palladium, an alloy consisting of these metals, stainless steel, carbon or graphite. The insulating or semiconductor material 102 is made of a macrocyclic material, a material having an aromatic moiety, a polymeric material containing fluorine, a material having an ether moiety, a material having a carbonyl moiety, a material having a double bond of phosphorus and nitrogen, or a glassy metal oxide.

The negative electrode of KAWAKAMI '901 is prepared by coating a liquid containing the electro-conductive material 101 and insulating or semiconductor material 102 on a surface of the current collector 100, followed by allowing the coating layer to dry.

As is clear from the above discussion, the negative electrode of KAWAKAMI '901 does not meet the claim elements of the present invention. For example, the negative electrode of KAWAKAMI '901 does not have the claimed current collecting surface layer. In addition, in the negative electrode of KAWAKAMI '901, the material of the current collecting surface layer is not present over the whole thickness of the active material layer. Further, the negative electrode of KAWAKAMI '901 does not have the claimed active material.

Therefore, the claimed invention is not anticipated by KAWAKAMI '901.

Conclusion

In view of the foregoing remarks, the rejections should be withdrawn, and the application allowed.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future submissions, to charge any deficiency or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

*/Robert A. Madsen/*

---

Robert A. Madsen, Reg. No. 58,543  
209 Madison Street, Suite 500  
Alexandria, VA 22314  
Telephone (703) 521-2297  
Telefax (703) 685-0573  
(703) 979-4709

RAM/lrs